

The Role of Social Support in the Associations between  
Neighborhood Violence and Internalizing Symptoms among Latino Youth

BY

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## Abstract

Latino youth are one of the fastest growing populations in the country and are at a disproportionately higher risk for being exposure to violence in their neighborhoods. Prior research has investigated the mental health outcomes of exposure to neighborhood violence; however, there are few studies on protective factors for the potentially negative outcomes of Latino youth who are exposed to neighborhood violence. It was hypothesized that neighborhood violence would have a curvilinear relationship with depressive symptoms, but a linear relationship with anxiety symptoms. It was also hypothesized that social support, from both family and peers, would moderate the association between neighborhood violence and both anxiety and depression symptoms, with family support expected to have a stronger buffering effect due to the Latino cultural value of *familismo*. The current sample included 144 Latino adolescents ( $N = 78$  Males;  $M = 16.25$  years,  $SD = 1.46$ ) from a charter high school in a large, Midwestern city. Participants completed a survey that included self-report measures on neighborhood violence exposure, anxiety symptoms, depression symptoms, and social support. Neighborhood violence exposure was found to have a linear association with both anxiety and depression symptoms. Additionally, neither peer nor family social support moderated the associations between neighborhood violence exposure and internalizing symptoms. Future research should continue examining factors that may buffer exposure to violence in the neighborhood, particularly among Latino youth.

*Keywords:* neighborhood violence, anxiety, depression, social support

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## The Role of Social Support in the Associations between Neighborhood Violence and Internalizing Symptoms among Latino Youth

National surveys in the United States have documented that a significant proportion of youth witness violence or are personally victimized in their communities (Finkelhor, Turner, Ormrod, & Hamby, 2009). Adolescents can be exposed to neighborhood violence indirectly through witnessing an act of violence, such as robberies or gang activity, or be directly exposed through victimization or engagement, where the adolescent is the target of or is participating in a violent act (Margolin & Gordis, 2000). Children and adolescents have different reactions to exposure to violence, with some youth showing resilience to exposure (e.g. Luthar & Goldstein, 2004). However, all too often, youth exposed to violence in their neighborhoods can have lasting effects on social and emotional well-being. Prior research has shown that exposure to neighborhood violence has been associated with adverse mental health outcomes (Overstreet, 2000; Wilson & Rosenthal, 2008; Fowler, Tompsett, Braciszewski, Jacques-Tiura, & Baltes, 2009), including internalizing symptoms such as depression and anxiety (Chen, 2010; White, Bruce, Farrell, & Klierer, 1998).

Internalizing symptoms are found to be relatively common in adolescence and can have lasting effects on future social and emotional well-being. For example, symptoms of anxiety and depression have been associated with low self-esteem, poor academic performance, substance use, and suicidal behaviors (Essau, Lewinsohn, Olaya, & Seeley, 2014; Rao et al., 1995). High rates of community violence exposure are also evident in adolescence (Cooley-Strickland, Quille, Griffin, Stuart, Bradshaw, & Furr-Holden, 2009), a developmental stage where individuals begin to develop a sense of identity and determine their place in society (Fowler et al., 2009). Neighborhood violence may pose as a barrier to the formation of a solid identity and connection to the community. Thus, it is important to investigate these associations during this sensitive developmental period.

The impact of neighborhood violence can have varying effects within different cultural contexts. The majority of research examining youth exposure to neighborhood violence has been conducted with African American populations (e.g., Hammack, Richards, Luo, Edlynn, & Roy, 2004; McMahon, Coker,

& Parnes, 2013; Gaylord-Harden, Cunningham, & Zelencik, 2011). However, as the fastest growing ethnic minority group in the United States, Latinos are more likely to live in impoverished communities, and thus are at an elevated risk for experiencing neighborhood violence (Finkelhor, Turner, Ormrod, Hamby, & Kracke, 2009). Furthermore, Latino youth witness, on average, significantly more community violence than non-Hispanic Whites (Hanson, Self-Brown, Fricker-Elhai, Kilpatrick, Saunders, & Resnick, 2006). This evidence emphasizes importance of examining factors, such as social support, that may promote resiliency within Latino populations to buffer the effects of violence exposure. Accordingly, the current study aims to understand the impact of neighborhood violence exposure on internalizing symptoms and the moderating roles of family and peer social support among Latino adolescents.

### **Neighborhood Violence and Internalizing Symptoms**

Substantial empirical evidence has demonstrated that exposure to community violence is related to internalizing symptoms such as depression and anxiety (e.g., Hammack et al., 2004; Fitzpatrick, Piko, Wright, & LaGory, 2005). Within an ecological-transactional framework (Cicchetti & Lynch, 1993), exposure to violence in one's neighborhood is a major environmental risk factor that may stress the individual and family systems, inhibiting healthy mental health development. Indeed, individuals exposed to violence can develop distracting worries and intrusive thoughts concerning the occurrences of violent events and personal safety (e.g., Cooley-Quille, Boyd, Frantz, & Walsh, 2001), symptomology consistent with anxiety disorders. Other studies have also found that the presence of daily stressors, such as violence in the community, have been found to predict feelings of hopelessness and depressed moods (e.g., Lazarus & Folkman, 1984; Sullivan et al., 2007). It is important to target these symptoms early as previous research has documented that internalizing disorders in adolescence are relatively stable over time (Birmaher et al., 1996; Essau, Conradt, & Petermann, 2002). Furthermore, adolescents with internalizing disorders are more likely to exhibit other maladaptive behaviors such as substance use and aggression (Essau et al., 2002; Woodward & Fergusson, 2001; Birmaher et al., 1996).

Anxiety is a common internalizing outcome examined in neighborhood violence research. However, research findings examining the associations between violence exposure and anxiety symptoms

are mixed. Research examining the relationship between the degree of violence exposure and severity of anxiety symptoms has focused on whether this relationship is linear, in that the more youth are exposed to violent acts symptoms of anxiety increase, or curvilinear, in that anxiety symptoms will increase until exposure to violence reaches a moderate level then begin to decrease as violence exposure continues to increase. Gaylord-Harden and colleagues (2011) found a linear relationship, in that adolescents showed increases in anxiety symptoms as violence exposure increased. Additional studies have found that adolescents exposed to higher levels of neighborhood violence reported a greater number of fears and worries compared to adolescents exposed to low levels of violence exposure (Cooley-Quille et al., 2001; Kliever, Lepore, Oskin, & Johnson, 1998). On the other hand, prospective studies have found a curvilinear relationship between violence exposure and anxiety symptoms. For example, McCart, Smith, Saunders, Kilpatrick, Resnick, and Ruggiero (2007) found a curvilinear relationship between violence exposure and PTSD symptoms for girls in that PTSD symptoms decreased as violence exposure increased from a moderate to high level. Additionally, using a psychophysiological assessment as a measure of anxiety, Cooley-Quille and Lorian (1999) found that adolescents with high levels of violence exposure had low resting heart rates. This finding suggests that, for adolescents with high exposure to violence, a desensitization process may occur as a means of adaptation to a violent environment (Fitzpatrick and Boldizar, 1993; Ng-Mak, Salzinger, Feldman, & Stueve, 2004). Note, however, that these curvilinear relationships have primarily been found in the examination of trauma symptoms and in longitudinal studies; therefore, the current study seeks to clarify whether this relationship occurs with symptoms primarily associated with anxiety disorders. However, given the majority of research broadly examining anxiety indicating a linear effect, I expected neighborhood violence exposure to be positively associated with anxiety symptoms.

Similar to anxiety, the research findings examining the associations between violence exposure and depression are mixed. Some have found a lack of a relationship between violence exposure and increased risk of depressive symptoms (Cooley-Quille et al., 2001; Fitzpatrick, 1993). Gormon-Smith and Tolan (1998) found a linear relationship between violence exposure and risk for depression within

African-American and Latino populations. Additionally, Slopen, Fitzmaurice, Williams, and Gilman (2012) found that adolescents had an increased likelihood of Major Depressive Disorder (MDD) when exposed to neighborhood violence over two years, and had an even higher risk when violence exposure was across multiple contexts (e.g., home, school). On the other hand, Gaylord-Harden et al. (2011) found a curvilinear relationship between violence exposure and depression. Adolescents in their study showed increases in depressive symptoms as violence increased, but only to a moderate level. Once violence exposure increased beyond the moderate level, depressive symptoms began to decrease. Similar to the literature on anxiety, some researchers have attributed this curvilinear relationship to a desensitization process (McCart et al., 2007), which suggests that youth adapt to violence by adjusting to their environment and viewing violence as a normal occurrence in their community (Fitzpatrick & Boldizar, 1993) and responding with emotional numbing (Ng-Mak et al., 2004). Notably, studies finding a curvilinear association between neighborhood violence exposure and depression symptoms have primarily been longitudinal studies. Accordingly, I expected to find a curvilinear association between neighborhood violence exposure and depressive symptoms, such that depressive symptoms were expected to increase as violence exposure increases to a moderate level and begin to decrease and violence exposure continues to increase to a high level.

Limited research has been conducted examining what factors can buffer these associations between violence exposure and internalizing symptoms. Furthermore, only a handful of studies have examined this relationship within Latino populations and they were primarily looking at trauma as a mental health outcome (e.g., Kennedy & Ceballo, 2013; Rosario, Salzinger, Feldman, & Ng-Mak, 2008). This warrants the need to investigate how the associations between violence exposure in the neighborhood and internalizing symptoms appear in Latino communities and an examination of what factors can buffer the effects of neighborhood violence.

### **Social Support and Violence Exposure**

There is a substantial amount of empirical evidence to highlight the benefits of social support (e.g., Auerbach, Bigda-Peyton, Eberhart, Webb, & Ho, 2011). Social support can be a psychological or



material resource and includes assistance in the appraisal of an event, advice or guidance in coping with difficulties, or the expression of empathy and reassurance (Cohen, 2004; Thoits, 1986; Cohen & Wills, 1985). In this manner, social support may reduce the impact of stressful events and promote successful adjustment (Aneshensel & Stone, 1982).

The stress-buffering hypothesis suggests that factors, such as social support, can buffer the negative effects of stressors like neighborhood violence (Cohen & Wills, 1985). Research conducted in multiple populations reveal that social support from different sources, such as family members or peers, can help buffer the effects of stressful events on adolescent development (McMahon et al., 2013; Raffaelli, Andrade, Wiley, Sanchez-Armass, Edwards, & Aradillas-Garcia, 2013). Much of this research has emphasized the importance of family support. For example, higher social support from guardians predicted decreased internalizing symptomology among inner-city youth (Rosario et al., 2008). Additionally, when levels of parental support were high, African American youth exposed to violence reported fewer depressive symptoms (McMahon et al., 2013) and Ozer (2005) found that social support, particularly from siblings, buffered the effects of violence exposure on the development of depressive symptoms.

Previous research suggests that social support networks expand beyond family members during middle childhood and are followed to incorporate increasing levels of peer support throughout adolescence (Cauce, Reid, Landesman, & Gonzales, 1990). Parents remain as a constant and important source of support, but as children transition to adolescence, they tend to seek more support from outside the family, increasing the level of support received from their peers (Levitt, Guacci-Franco, & Levitt, 1993). Support from peers has been shown to buffer the effects of victimization on depressive symptoms (Haden & Scarpa, 2008) and support from friends predicted lower levels of aggression (Scarpa & Haden, 2006). As children progress through adolescence, and especially in immigrant groups that may be geographically separated from family, peer support can be a potentially beneficial source of support.

It is also important to note the adverse side of social support. Youth reporting high peer social support and has been seen to be a protective factor particularly for internalizing symptoms (e.g., Parker,

Rubin, Price, & DeRosier, 1995); however, the effects of peer social support may also have negative effects on behavior. For example, youth associating with peers similar to themselves tend to share the same behavioral characteristics, which may encourage antisocial behaviors if the peer group's behavioral pattern is antisocial (e.g., Reiss & Farrington, 1991). Indeed, Bender and Lösel (1997) found that a lack of peer social support and sense of belonging to a peer group has a protective effect for deviant youth.

The current study attempted to extend prior research by examining the buffering effects of both family and peer supports in the associations between violence exposure and internalizing symptoms. Additionally, the study attempted to contribute to the literature by examining these associations within an adolescent Latino sample, as currently there are only a handful of studies examining this association within Hispanic and Latino samples (e.g., Rosario et al., 2008; Raffaelli et al., 2012; Kennedy & Ceballo, 2013), only one of which included anxiety symptoms as a mental health outcome and none of which have examined curvilinear effects between violence exposure and internalizing symptoms.

### **Social Support and Latino Culture**

It is important to understand the cultural context in which social support may occur. In Latino immigrant families, the value of *familismo* (familism) has been studied as a protective factor to stress. *Familismo* involves feelings of support and reciprocity that may buffer and increase the role of family support in Latino youth. This emphasis on family connectedness builds a sense of unity and loyalty within the family and highlights the need to rely on family for social support (Calzada, Fernandez, & Cortez, 2010). Therefore, this cultural factor may protect youth from strained familial relationships and maintain and promote successful acclimation and adjustment to a new culture.

A developmental need for increased peer support during adolescence can make immigrant youth vulnerable for maladjustment (Waters, 1997). Many immigrant parents work long hours at low-paying jobs, decreasing their time and presence with their children and adolescents. This lack of parental presence at home prompts children and adolescents to seek increased support from peers within their community (Waters, 1997). However, for immigrant youth, this may be a difficult task as they are faced with additional challenges in establishing peer connections due to language barriers, fears of

stigmatization and prejudice, and acculturation (Coll & Magnuson, 1997). This lack of or diminished network of peer social support can pose as a risk factor for the development of internalizing behaviors. Indeed, prior research has shown that depression is more likely to develop when individuals perceive a lack of support from interpersonal relationships, such as friends and parents (Allen, Insabella, Porter, Smith, Land, & Philips, 2006; Brown, Meadows, & Elder, 2007). To advance this line of research, the current study evaluates the protection afforded by both family and peer support against internalizing symptoms such as depression and anxiety.

### **Current Study**

The current study aimed to extend the literature by examining the moderating role of family and peer social support on the associations between neighborhood violence exposure and internalizing symptoms in a Latino sample. Building on prior work, it was expected that exposure to violence would be positively associated with internalizing symptoms. Specifically, the current study examined the linear and curvilinear associations of exposure to violence to anxious and depressive symptoms. Previous studies have hypothesized a desensitization process to suggest that youth exposed to violence may show less distress as violence levels increase (e.g. Ng-Mak et al., 2004; Fitzpatrick & Boldizar, 1993). However, these studies have largely focused on PTSD symptoms or have combined depressive and anxious symptoms into one internalizing symptom variable. Further, Latino populations have been underrepresented in prior research studies. Thus, the current study contributes and extends prior research by examining these associations separately for anxiety and depression in a sample of Latino adolescents. It was hypothesized that exposure to violence would have a curvilinear relationship with depressive symptoms. It was also hypothesized that violence exposure would have a linear association with anxiety symptoms since prior studies have only found curvilinear associations with PTSD symptoms (McCart et al., 2007). Additionally, it was hypothesized that social support, from both family and peers, would moderate the impact of violence exposure on internalizing symptoms. Furthermore, it was expected that family support would have stronger buffering effects of neighborhood violence compared to peer support,

given that Latino immigrant families tend to rely heavily on family support and maintain the Latino cultural value of *familismo*.

## **Methods**

### **Participants**

Participants were recruited from a charter high school located in a large, Midwestern city. Researchers set up a table in the school's main hallway and were available to answer questions and give consents to caregivers during parent-teacher conferences. Caregivers who were interested in enrolling their youth in the study provided written informed consent. Since the majority of parents at the school speak Spanish as their primary language, consent forms were provided in both Spanish and English. In addition, school-sanctioned translators assisted in providing information and answering families' questions about the study. Consent forms were sent home to caregivers who did not attend the conferences. Students who were 18 years old or older were allowed to provide their own written consent to participate in the study.

Of the 207 students enrolled in this school, a total of 155 (77%) received written permission to participate in the study with 142 students having caregiver consent and 13 students providing consent for themselves. The majority (66%) of the consent forms returned were in Spanish. A total of 152 out of the 155 students with consents to participate completed the surveys, with three students being absent during data collection. Of the 152 students, 144 (94.7%) students self-identified as Hispanic/Latino, which were the students included in the current study. Of these 144 participants, 78 were males and 66 were females with an age range of 14 – 19 years ( $M = 16.25$ ;  $SD = 1.46$ ). School records indicated that 95.4% of students at this school qualified for free or reduced lunch fees, suggesting that this sample is primarily of low socioeconomic status. Additionally, school records indicated that the vast majority (> 90%) of Hispanic/Latino youth report Mexican descent.

### **Procedures**

All procedures, measures, and study forms were approved by the researcher's institutional review board and the school administration prior to data collection. Participants completed the survey during a

writing class required for all students. Class sizes ranged from 9-24 students and assent was obtained from participants prior to completing the survey. One trained researcher was in each classroom and read each survey item aloud to students. No school personnel were present in the room while surveys were being administered to ensure confidentiality and reduce bias in participants' responses. Students filled out the surveys on their own, with the majority of students completing the survey in approximately 30 minutes. Prior to data collection, the school provided names of students who might prefer taking the survey in Spanish and these students were given the option of completing the survey in English or Spanish; only three students completed the Spanish version of the survey. Participants were given a \$5.00 debit card as compensation for their participation.

## **Measures**

**Demographics.** Participants were asked to report on several demographic characteristics, including age, gender, ethnicity (i.e., "Hispanic or Latino," or "Not Hispanic or Latino"), and proportion of time spent in the United States, which was calculated by dividing the amount of time participants lived in the United States by their age.

**Neighborhood Violence.** Neighborhood violence was assessed using five items measured on a 4-point Likert scale (1 = *Never*, 4 = *Often*; Sampson, Raudenbush, & Felton, 1997). This scale has been previously found to be a reliable and valid measure of exposure to neighborhood violence (e.g. Sharkey, 2006; Gracia, Fuentes, Garcia, & Lila, 2012). The five items examined exposure to different kinds of violence within the past six months, including a fight involving a weapon, violent argument, gang fight, murder, and robbery or mugging. Mean scores were computed and used for analyses. Higher scores on this measure indicated more exposure to community violence. This measure demonstrated good internal consistency within the current sample ( $\alpha = .83$ ).

**Anxiety.** The short form of the Revised Children's Manifest Anxiety Scale – Second Edition (RCMAS-2; Reynolds & Richmond, 2008) was used to assess for the number of anxiety symptoms experienced. Although no known studies have measured the reliability and validity of the RCMAS-2 with Latino youth, the previous version of this measure (RCMAS) has been found to be a reliable and valid

measure of anxiety among Latino youth (e.g., Pina, Little, & Knight, 2009). Participants responded to ten items by indicating whether an item was true for them (1 = *Yes*) or not true for them (0 = *No*). The measure includes items regarding being nervous, worrying about what others think of them, and experiencing somatic symptoms of anxiety. Scores were summed across items, with higher scores indicating greater number of anxiety symptoms. In this sample, this measure demonstrated adequate internal consistency ( $\alpha = .77$ ).

**Depression.** Depressive symptoms were assessed using adolescents' responses to the Withdrawn/Depressed scale of the *Youth Self-Report* (YSR; Achenbach, 1991). The YSR has been widely used with Latino youth (e.g., Vega, Zimmerman, Khoury, Gil, & Warheit, 1995) and the internalizing scale, which is comprised of the depressed and withdrawn subscales, has been demonstrated to be reliable and valid measure (Achenbach, 1991). This scale consists of eight items involving feeling unhappy, sad, or depressed, lacking energy, and preferring to be alone. Adolescents indicated whether each item was true for them at that time or within the past 6 months on a 3-point scale (0 = *Not True*, 1 = *Somewhat or Sometimes True*, 2 = *Very or Often True*). Total scores were created by summing all items together, with higher scores indicating higher levels of depressive symptoms. The withdrawn/depressed scale demonstrated adequate reliability in this sample ( $\alpha = .79$ ).

**Peer Social Support.** Social support was measured using questions based on the work of Thoits (1995) that examined both adult and peer social support. Previous research has used this measure with Puerto Rican youth and has been demonstrated as a reliable and valid measure (Bird, Canino et al., 2006; Bird Davies et al., 2006; Rubens, Vernberg, Felix, & Canino, 2014). For this analysis, three items from the interview were summed together for a social support from friends subscale. Higher scores indicate more social support from peers. Two questions, ("*Can you share your happiness and your pain with friends?*") and ("*Can you talk to your friends about your problems?*") were measured using a four-point Likert scale (1 = *Never*, 4 = *Always*). One question ("*How many friends can you count on to talk about your problems?*") was originally asked as an open-ended question. For this analysis, responses to the

open-ended question were coded using a four-point scale (0-3 where 0 = *No friends*, 3 = *3 or more friends*) so that the scores were on a metric similar to the other two peer social support questions.

**Family Social Support.** Social support from family was measured similar to peer social support, based on the work of Thoits (1995). One item (“*Can you talk to your family about your problems?*”) using a four-point Likert scale (1 = *Never*, 4 = *Always*) was used to assess family social support.

### **Data Analysis Plan**

Basic descriptive statistics were first calculated to examine levels of neighborhood violence exposure, self-reported anxiety symptoms, depression symptoms, and family and peer social support. Frequencies of specific violent exposure events were described to determine particularly high rates of violent events in the current sample. Correlations among variables of interest were then estimated to examine bivariate associations. Correlations between potential control variables (e.g. age, gender, proportion of time in the U.S.) and the variables of interest were also calculated to determine which control variables would be included in the regression analyses.

Hierarchical regression analyses were conducted to test the hypotheses regarding the associations between the independent variable (neighborhood violence exposure) and dependent variables (anxiety and depression). All variables were standardized prior to analyses to aid in the interpretation of the results. To test our prediction that anxious and depressive symptoms would have a curvilinear association with neighborhood violence exposure, I first introduced the control variables and independent variable (model 1). Then, I entered the quadratic neighborhood violence exposure term (model 2) into the regression equation. This analysis was done separately for both anxiety and depression as the dependent variable. To determine whether the association is linear or curvilinear, the coefficient ( $\beta$ ) associated with the quadratic term was examined for statistical significance. A statistically significant coefficient denoted the presence of a curvilinear effect, indicating that the linear relationship between violence exposure and the outcome (e.g., anxiety or depression) changes slope across the levels of violence exposure. However, if the coefficient associated with the quadratic term was not found to be statistically significant, then a linear effect was retained.

To test the hypothesis that social support would moderate the linear or curvilinear association between neighborhood violence exposure and anxiety and depression, interaction effect regression models were estimated. To test this hypothesis, I introduced the relevant interaction term (e.g., neighborhood violence exposure<sup>2</sup> x social support) in model 3 of the regression equation. A statistically significant coefficient ( $\beta$ ) associated with the interaction term indicated a moderated effect. This analysis was done separately for both peer and family social support as the moderators.

## **Results**

### *Descriptive Statistics*

Frequency data indicated that, during the last six months in their neighborhood, 67% of the sample indicated there was a fight in which a weapon was used, 76% indicated there was a violent argument between neighbors, 52% indicated there were gang fights, 46% indicated there was a murder, and 69% indicated there was a robbery or mugging. In terms of social support, the majority of the sample (94%) indicated that they are able to talk to their family about their problems. Similarly, 93% of the sample reported they have at least one or more friends they could count on to talk about their problems with. Regarding time spend in the United States, participants reported spending an average of 76% of their lives living in the United States.

See Table 1 for means, standard deviations, and correlations of all study variables. Skewness and kurtosis values were not a concern for neighborhood violence (skewness = .56, kurtosis = -.30), anxiety symptoms (skewness = .80, kurtosis = -.04), depression symptoms (skewness = .86, kurtosis = .26), family social support (skewness = .63, kurtosis = -.67), or peer social support (skewness = -.31, kurtosis = -.52). Correlation analyses indicated that participants who had experienced high levels of neighborhood violence were more likely to self-report high levels of anxiety and depression symptoms. Neighborhood violence was not statistically associated with either family or peer social support. Moreover, family and peer social support were not statistically associated with anxiety and depression symptoms. Family and peer social support were statistically associated with each other, in that higher levels of family social support were associated with higher levels of peer social support. There was a negative association



between proportion of time spent in the United States and family social support, suggesting that participants who lived longer in the United States were less likely to report support from their family. Females were more likely to self-report more peer social support in comparison to males.

### *Regression Analyses*

The initial regression models were conducted to determine whether neighborhood violence had a linear or curvilinear association with the outcome variables. Two sets of analyses were conducted, one for each outcome variable (anxiety, depression). For each set of analyses, the three control variables and independent variable (e.g., age, gender, proportion of time in the U.S., neighborhood violence) were entered in block 1 of the regression equation. Next, the quadratic independent variable term was entered in block 2 of the equation. When examining anxiety as the outcome variable, the quadratic neighborhood violence term was not significant ( $\beta = -.023$ ,  $p > .05$ ), suggesting that anxiety symptoms had a linear association with neighborhood violence. Likewise, when examining depression as the outcome variable, the quadratic neighborhood violence term was not significant ( $\beta = .003$ ,  $p > .05$ ), indicating that depression symptoms had a linear, rather than curvilinear, association with neighborhood violence.

Regression models were then used to evaluate the unique first-order and interaction effects of neighborhood violence and each social support term on both anxiety and depression symptoms as the outcome variable, resulting in four sets of analyses. We first present the results for anxiety as the outcome variable. In the first set of analyses with family social support (see Table 2), high levels of neighborhood violence were associated with high levels of anxiety in the first-order effects model. The interaction term between neighborhood violence and family social support was then added to the model; however, no significant interaction was found ( $\beta = -.092$ ,  $p > .05$ ). Similarly, in examining whether family social support moderated curvilinear effects, the interaction term between the quadratic neighborhood violence term and family social support was added to the quadratic effects model and no significant interaction was found ( $\beta = .082$ ,  $p > .05$ ). In the second set of analyses with peer social support (see Table 3), the first-order effects model revealed that being female and high levels of neighborhood violence were associated with high levels of anxiety symptoms. When the interaction term between neighborhood violence and

peer social support was added to the initial model, similar to family social support, no significant interaction was found ( $\beta = .002, p > .05$ ). When examining whether peer social support moderated curvilinear effects, the interaction term between the quadratic neighborhood violence term and peer social support was added to the quadratic effects model; however, no significant interaction was found ( $\beta = -.044, p > .05$ ).

Next, we present the results for depression as the outcome variable. In the first set of analyses including family social support (see Table 4), being female and high levels of neighborhood violence were associated with high levels of depression symptoms. The interaction term between neighborhood violence and family social support was then added to the model; however, no significant interaction was found ( $\beta = .097, p > .05$ ). In the second set of analyses, the first-order effects model revealed that being female and high levels of neighborhood violence were associated with high levels of depression symptoms (see Table 5). Additionally, a marginally-statistically significant effect was found between peer social support and depression symptoms ( $b = -.163, p = .056$ ), indicating that low levels of peer social support were associated with high levels of depression symptoms. When the interaction term between neighborhood violence and peer social support was added to the first-order model, no significant interaction was found ( $\beta = .002, p > .05$ ). Similar to anxiety, to examine whether family and peer social support moderated curvilinear effects, the interaction term between the quadratic neighborhood violence term and both social support variables were entered in quadratic effects model, but no interaction was found for either family or peer social support ( $\beta = -.010, p > .05$ ;  $\beta = .048, p > .05$ , respectively). These results suggest that both neighborhood violence and peer social support both contribute to depressive symptoms, but their effects are not dependent on each other.

## **Discussion**

The current study contributes to the literature by examining linear and curvilinear associations between neighborhood violence, anxiety symptoms, and depression symptoms and by evaluating the moderating effects of peer and family social support on these associations in a sample of Latino adolescents. Findings from this study are consistent with expectations and previous research (e.g.,

Fitzpatrick et al., 2005; Chen, 2010), indicating linear associations between neighborhood violence and both anxiety and depression symptoms. However, no moderating effects of social support were evident.

High levels of neighborhood violence were found to be associated with high levels of anxiety and depression symptoms. This is consistent with prior research documenting a link between exposure to neighborhood violence and psychopathology, such as anxiety and depression (e.g., Chen, 2010). Additionally, these findings are consistent with previous literature examining minority ethnic groups such as African Americans (e.g., McMahon, Coker, & Parnes, 2013), and extend the literature by finding similar results in a sample of Latino adolescents.

Anxiety was found to have a linear association with neighborhood violence. This is consistent with the literature on neighborhood violence and anxiety symptoms, as opposed to PTSD-related symptoms, as a linear relationship has been consistently found primarily in studies examining anxiety symptoms (e.g., Gaylord-Harden et al., 2011; Cooley-Quille et al., 2001). Moreover, studies that have found a curvilinear relationship between neighborhood violence and anxiety have used psychophysiological measures of anxiety, such as heart rate. Future research is still warranted to further elucidate the relationship between exposure to neighborhood violence and symptoms of anxiety and whether a desensitization process does occur due to a physiological reaction.

Surprisingly, similar to anxiety symptoms, depression symptoms were also found to have a linear association with neighborhood violence. This is consistent with previous literature demonstrating an increase of depressive symptoms as exposure to violence increases (e.g., Fitzpatrick, 1993; Gormon-Smith & Tolan, 1998). However, this is inconsistent with a desensitization process in which depressive symptoms begin to decrease and violence exposure increases from a moderate to high level as a means of adapting to a violent environment (Gaylord-Harden et al., 2011). Further research, particularly longitudinal studies, examining the relationship between depression and neighborhood violence would be beneficial to gain a better understanding of the relationship between depression and neighborhood violence exposure and the potential role of desensitization.

Both peer and family social support were not significantly correlated with anxiety and depression symptoms. However, in the regression model with depression symptoms, peer social support was found to be marginally associated with depression after accounting for other variables that were entered in the model (e.g., age, gender, proportion of time in the U.S.). These findings must be understood within the context of the study sample. The ethnic composition of the school is predominantly Latino, creating an environment that may not be representative of immigrant youth in U.S. schools, and thus may be impacting the relationships between social support and mental health outcomes. Additionally, previous research has demonstrated that the influence of social support on mental health outcomes differs across immigrant groups, in that the benefits of social support is more apparent among long-term immigrants (Puyat, 2013). This is consistent within a stress-buffering framework, which would predict that individuals with low social support would be recent immigrants as they are exposed to higher levels of stress due to factors such as acculturation.

Additionally, neither type of social support moderated the associations between neighborhood violence and anxiety symptoms, and neighborhood violence and depression symptoms. Previous studies have found that exposure to neighborhood violence is associated with affiliation with deviant peers (e.g., Mrug & Windle, 2009). Especially in immigrant youth, fear of social isolation and rejection, language barriers, and the desire to acclimate to a new culture may place youth at a greater risk of associating with deviant youth to fit in a violent neighborhood (Waters, 1997). Thus, youth living in violent neighborhoods may not have the opportunity to receive adequate support from their peers or family members to buffer the effects of neighborhood violence exposure on internalizing symptoms. Particular to the current sample, being among peers from a similar ethnic and racial background and high rates of peer social support may have attenuated associations.

#### *Limitations & Future Directions*

The current findings need to be evaluated in the context of study limitations. Although the measure used to assess peer social support was found to be a reliable and valid measure used in similar populations in previous studies, the measure was limited in length. This measure may have limited the

depth of understanding of peer social support. Future research may want to utilize a measure that explores the construct of peer social support at a greater depth in order to better understand the influence of peer social support on youth exposed to neighborhood violence. Similarly, the measure used to assess family social support was limited to one item, which limits the depth of understanding of this particular source of social support. Using a measure that examines the construct of family social support at a greater depth (e.g., impact of siblings versus parents) will aid future researchers in understanding of the impact of family social support. Further, the majority of measures used in the current study have not been validated in Latino samples. Further research using culturally validated measures would be beneficial in examining the cultural nuances of social support and the experience of anxiety and depression symptoms.

Another limitation of this study is its cross-sectional design. As such, causal inferences cannot be drawn. Longitudinal studies are needed in order to examine the long-term effects of neighborhood violence and social support on both anxiety and depression symptoms in order to better understand how these variables influence each other over time and to utilize this understanding to implement effective interventions for youth who are exposed to violence in their neighborhoods.

Future research should continue examining mental health outcomes associated with exposure to neighborhood violence and consider other neighborhood characteristics, such as neighborhood disadvantage. There is limited research in this area, notably among Latino youth (e.g., Estrada-Martinez, Caldwell, Schulz, Diez-Roux, & Pedraza, 2013), and given the burgeoning population of Latinos in the United States, research in this area would be beneficial in implementing culturally sensitive interventions to affected youth. Additionally, from a prevention and intervention perspective, it is important for research to distinguish risk among Latino ethnic subgroups. Previous research has documented differences, particularly in violent behaviors, between Latino ethnic subgroups. For example, Sampson, Morenoff, and Raudenbush (2005) found that Mexican youth were at a lower risk for violent behaviors compared to Puerto Rican youth. Moreover, Mexican, Cuban, and Central American youth did not differ in risk for violence when compared to Caucasian youth; however, Puerto Rican youth were found to be at a higher risk for violence when compared to Caucasian youth (Felson, Dean, & Armstrong, 2008). These

differences across ethnic subgroups may stem from the different social environments, such as neighborhood characteristics, experienced by youth. This emphasizes the need for research to examine multiple cultural factors, such as nativity, acculturation, assimilation, language acquisition, and cultural perspectives of parenting, and family relations, when conducting research with cultural populations.

Additionally, future research should continue examining the role of social support in the associations between neighborhood violence and adverse mental health outcomes, especially in Latino youth given that this population may be at risk for being exposed to violence in their neighborhoods (Finkelhor et al., 2009). For instance, examining the specific construct of *familismo* is important to better understand the influence of family social support among Latino youth. Furthermore, results of the current study found no significant relationship between both social supports and internalizing symptoms and thus, future research should examine factors that may affect the impact of social support on mental health outcomes such as age of participants, time spent in the new culture, and amount of time exposed to violence. Research in this area would further elucidate how social support impacts immigrant populations and to better tailor interventions for immigrant populations and targeting social support systems. Furthermore, it is important to examine the quality and context of social support. Given that high social support may be protective for some youth, the lack of social support may be protective for more antisocial youth (e.g., Bender, D., & Lösel, 1997). Other future directions in this line of research should include other potential moderators, such as school attachment and academic aspirations, that may buffer the effects of neighborhood violence on the development of adverse mental health outcomes.

### *Conclusions*

Despite the limitations mentioned, the current study extends existing literature by examining the role of both peer and family social support in the associations between neighborhood violence exposure and anxiety and depression with a sample of Latino adolescents. It is important to understand risk and protective factors in order to develop relevant and effective interventions that promote positive youth development among Latino youth and their communities. The findings from the current study suggest that neighborhood violence is associated with increased risk for anxiety and depression symptoms among

Latino youth. This finding has implications for clinicians who work with youth in violent neighborhoods to utilize prevention strategies to target symptoms related to their experiences in their communities, such as persistent worries of safety and feelings of hopelessness. For example, interventions that validate experiences of violence exposure, teach appropriate safety and emotion coping skills, and provide an outlet for grief and mourning may benefit youth and minimize the effects of neighborhood violence exposure. Indeed, Ceballo (2000) developed a school-based intervention, Neighborhood Club, targeting youth exposed to violence in their communities and to equip them with both coping and general life skills to buffer the effects of violence exposure. Although preliminary evidence has demonstrated no significant differences in pre- and posttest measures of mental health outcomes (e.g., depression and PTSD symptoms), anecdotal reviews from youth, parents, and teachers reveal that the intervention helped youth feel more comfortable sharing their feelings, concerns, and experiences regarding their communities with others (Ceballo, 2000; Ceballo, Ramirez, Maltese, & Bautista, 2006).

Furthermore, the findings of the current study have implications for changes at the neighborhood-level. Research has demonstrated that structured and supervised after-school activities, such as school clubs and religious activities, may limit exposure to violence (Kennedy & Ceballo, 2013). Participation in such activities among schools and community agencies should be emphasized and encouraged among youth in violent neighborhoods. Furthermore, Dodington and colleagues (2012) found that adults and youth agreed that cleaning up neighborhoods by removing drugs, weapons, and trash, would be a valid community-wide intervention of violence prevention. Indeed, previous studies have shown disadvantaged neighborhoods riddled with trash pose as a significant risk factor for violence exposure (Yonas et al., 2007). Thus, utilizing neighborhood “cleanups” can not only prevent violence exposure, but also provide a community-based activity for both adults and youth to participate in to increase their sense of community.

Table 1. Descriptives and Correlations

	1	2	3	4	5	6	7	8
1. Gender	-	-	-	-	-	-	-	-
2. Age	-.10	-	-	-	-	-	-	-
3. Proportion of time in the U.S.	.09	-.08	-	-	-	-	-	-
4. Neighborhood Violence	-.11	-.05	.04	-	-	-	-	-
5. Anxiety Symptoms	.13	-.08	-.04	.22**	-	-	-	-
6. Depression Symptoms	.16	.08	-.07	.17*	.46**	-	-	-
7. Peer Social Support	.18*	-.09	.03	-.07	-.11	-.13	-	-
8. Adult Social Support	-.14	.01	-.22*	-.06	.01	-.13	.17*	-
Mean	-	16.25	.76	2.08	2.60	4.22	8.49	2.51
Std. Deviation	-	1.46	.27	.78	2.44	3.16	2.33	.87

\*  $p < .05$

\*\*  $p < .01$



Table 2. Anxiety Symptoms Models with Family Social Support as Moderator

	First-order Effects			Interaction Effects	
	$\beta$	$SE$		$\beta$	$SE$
	$R^2 = .08$			$R^2 = .09$	
Gender	.16	.09		.16	.09
Age	-.05	.08		-.06	.09
Proportion of Time Spent in the U.S.	-.06	.09		-.08	.09
Neighborhood Violence	.24**	.09		.24**	.09
Family Social Support	.03	.09		.03	.09
Neighborhood Violence x Family Social Support	-	-		.09	.08

\*\*  $p < .01$

Table 3. Anxiety Symptoms Models with Peer Social Support as Moderator

	First-order Effects		Interaction
	$\beta$	$SE$	$R^2 = .10$
Gender	.18*	.09	.18*
Age	-.06	.08	-.06
Proportion of Time Spent in the U.S.	-.07	.08	-.07
Neighborhood Violence	.22**	.08	.22**
Peer Social Support	-.15	.09	-.15
Neighborhood Violence x Peer Social Support	-	-	.00

\*  $p < .05$

\*\*  $p < .01$

Table 4. Depression Symptoms Models with Family Social Support as Moderator

	First-order Effects		Interaction
	$\beta$	$SE$	$R^2 = .09$
Gender	.18*	.08	.18*
Age	.11	.08	.11
Proportion of Time Spent in the U.S.	-.12	.09	-.12
Neighborhood Violence	.18*	.08	.18*
Family Social Support	-.13	.09	-.13
Neighborhood Violence x Family Social Support	-	-	-.01

\*  $p < .05$

Table 5. Depression Symptoms Models with Peer Social Support as Moderator

	First-order Effects		Interaction Effects	
	$\beta$	SE	$\beta$	SE
	$R^2 = .10$		$R^2 = .10$	
Gender	.22**	.08	.22*	.09
Age	.10	.08	.10	.08
Proportion of Time Spent in the U.S.	-.09	.08	-.09	.08
Neighborhood Violence	.17*	.08	.17*	.08
Peer Social Support	-.16*	.09	-.16*	.08
Neighborhood Violence x Peer Social Support	-	-	-.02	.09

\*  $p < .05$

\*\*  $p < .01$

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